

NEW SPECIES OF ALLOGNOSTA FROM CHINA (DIPTERA, STRATIOMYIDAE)

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Abstract The following four new species of *Allognosta* from China are described: *A. apicinigra* sp. nov., *A. liui* sp. nov., *A. ningxiana* sp. nov. and *A. yanshana* sp. nov.

Key words Diptera, Stratiomyidae, *Allognosta*, new species, China.

The genus *Allognosta* Meigen is distributed in the Nearctic, Palaearctic, Oriental and Afrotropical Regions with 37 known species (Woodley, 2001). It is characterized by the following features: abdomen broad and distinctly depressed dorso-ventrally; abdominal tergites 2-6 each with subapical groove; antenna distinctly shorter than head, with scape nearly as long as pedicel and flagellum distinctly longer than scape + pedicel; scutellum without spines; mid tibia with an apical spur; wing with vein M₃ absent (Yang and Nagatomi, 1992). The Palaearctic and Oriental species were studied mainly by Brunetti (1920, 1923), Enderlein (1921), Frey (1961), James (1969), Lindner (1936-1938), Nagatomi and Tanaka (1969), Rozkošný (1982), Yang and Nagatomi (1992). The Chinese species were reviewed by Yang and Nagatomi (1992). Here four new species are added to the fauna of China. The types are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing.

Key to species of *Allognosta* from China (modified from Yang and Nagatomi, 1992)

1. Eyes bare or sparsely short haired; mesonotum and scutellum with short hairs 2
Eyes densely long haired; mesonotum and scutellum with long erect pale hairs; femora entirely yellow. Sichuan; Japan, Myanmar
..... *A. flavofemoralis*
2. Abdomen partly or largely yellow 3
Abdomen entirely brown to black 12
3. Thoracic pleura entirely yellow or partly dark 4
Thoracic pleura entirely dark brown to black (sometimes excepting brownish yellow spot below wing base) 8
4. Thoracic pleura partly dark 5
Thoracic pleura entirely yellow 7
5. Thorax mostly dark brown to blackish; antenna yellow or only apex of flagellum dark brown 6
Thorax mainly yellow; antenna mostly dark brown. Hainan
..... *A. apicinigra* sp. nov.
6. Antennal flagellum with yellow apex; abdominal tergites 1-4 with large yellow markings; hind tibia entirely brown to dark brown; basal 1/2 of wing partly tinged with brownish. Yunnan, Guangxi ... *A. orientalis*
Antenna entirely yellow; yellow markings of abdominal dorsum confined

- to tergites 2-3 (or 1-3); hind tibia yellow at base; basal 1/2 of wing hyaline. Tibet; Myanmar *A. maculipleura*
7. Abdomen brown to dark brown, but tergites 1-3 somewhat yellowish at middle; wing somewhat dark brown (stigma darker), but basal 1/4 whitish; halter dark brown, stem somewhat paler. Taiwan
..... *A. fuscipennis*
Abdomen largely yellow; wing hyaline (or with light brown tinge) and stigma light brown; halter yellow. Sichuan *A. sichuanensis*
8. At least palpal segment 2 yellow; halter yellow 9
Palpus entirely black; halter brown or dark brown, but stem yellow ...
..... 10
9. Wing yellowish except apical 1/2 pale brown (stigma etc., apparently not darker). Taiwan *A. partita*
Wing light brownish except basal 1/2 of wing paler with stigma, subcostal cell above stigma, apex of costal cell, and 2nd submarginal cell darker. Sichuan *A. basiflava*
10. Coxae yellow or brownish yellow 11
Coxae red-brown; hind tarsus entirely dark brown; abdominal tergite 1 without yellow spot. Taiwan *A. maxima*
11. Female frons distinctly projected beyond eyes; abdominal tergite 1 with large median spot. Taiwan; Japan *A. japonica*
Female frons not projected beyond eyes; abdominal dorsum entirely black. Ningxia *A. ningxiana* sp. nov.
12. Female frons indistinctly projected beyond eyes; thorax entirely black 13
Female frons distinctly projected beyond eyes; thorax blackish or partly yellow 14
13. Mid tarsomere 1 (or 1-2) and hind tarsomeres 1-3 yellow; antennal pedicel brownish yellow and flagellomeres 1-2 yellow. Beijing, Sichuan, Yunnan, Hunan, Zhejiang, Fujian; Europe, Japan *A. vagans*
All tarsi black; antennae black. Hubei; India *A. inermis*
14. Antennal flagellum dark brown except 2 basal segments reddish yellow and last segment black; thoracic pleuron yellow to dark yellow with one blackish longitudinal spot; mid tibia yellow. Hainan
..... *A. liui* sp. nov.
Antennal flagellum reddish yellow except last segment black; thoracic pleuron blackish, sternopleuron with one large shiny blackish spot; mid tibia (except bases) blackish to black. Guangxi
..... *A. yanshana* sp. nov.

1 *Allognosta apicinigra* sp. nov. (Figs. 1-3)

Diagnosis. Female frons weakly projected beyond eyes. Antennal scape and pedicel yellow, flagellum dark brown except 2 basal segments reddish yellow and 2 apical segments black. Thoracic pleuron partly yellow. Apical 1/3 of hind femur blackish. Hind tibia entirely

The research was funded by Beijing Financial Budget Index [2008] (0178) and Beijing Nova Project (2006A50).

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Received 10 Mar. 2009, accepted 26 June 2009.

black.

Female. Body length 4.0 mm , wing length 3.8 mm.

Head subshiny black except lower frons , face and gena with pale gray pollen ; lower frons and face with one pair of large shiny black lateral spots. Frons weakly projected beyond eyes. Eyes widely separated on frons , blackish brown. Hairs on head pale ; eyes bare. Head 1.4 times higher than long ; width of one eye 0.35 times distance between antennae and median ocellus , 0.5 times width of frons just above antennae and 0.4 times width of face at lowest point from a direct frontal view ; width of frons just above antennae subequal to that at median ocellus ; distance from ridge below proboscis to antenna 0.6 times that from antennae to median ocellus. Antennal scape and pedicel yellow , flagellum dark brown except 2 basal segments reddish yellow and 2 apical segments black ; relative lengths of antennal segments 3.0 3.0 18.5. Proboscis blackish with black hairs ; palpus black except basal segment blackish , with black hairs.

Thorax yellow with pale gray pollen , except dorsum (including humeri and postalar calli) black with mesonotum and scutellum subshiny ; mesopleuron

(except dorsal and anterior portions) , sternopleuron , pteropleuron and laterotergite black. Hairs on thorax pale. Legs [fore , mid and hind legs broken except coxae and trochanters] yellow ; apical 1/3 of hind femur blackish , hind tibia and hind tarsomeres 4-5 black. Hairs on legs pale except hind tibia and hind tarsomeres 4-5 with black hairs. Wing pale grayish brown , but basal half except anterior margin and cell R_{2+3} pale ; veins dark brown. Squama dark yellow with pale hairs. Halter dark brown with yellow base.

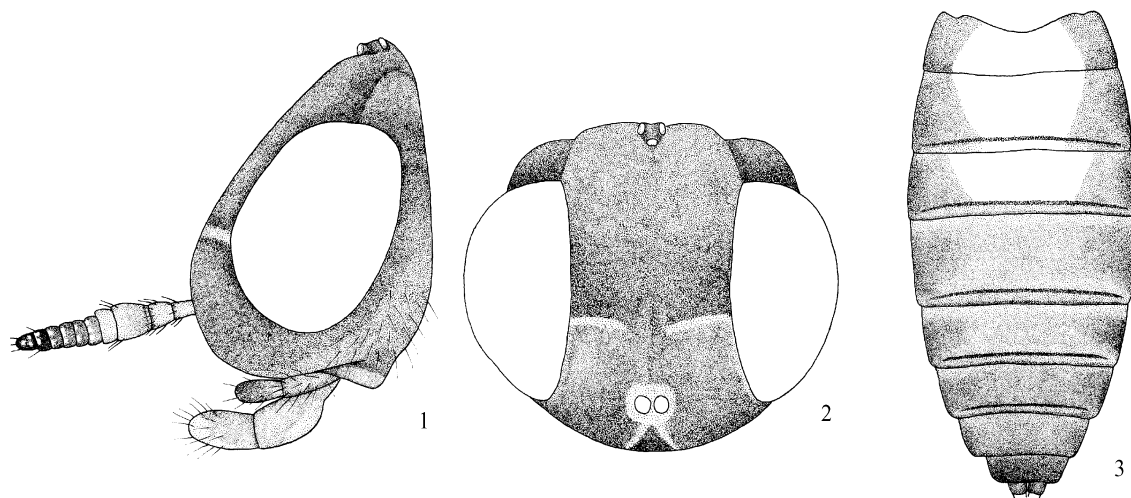
Abdomen dark brown with pale grey pollen , but tergites 1-3 (except lateral portions of tergites 1-3 and posterior margin of tergites 2-3) yellow. Hairs on abdomen black.

Male. Unknown.

Holotype , Hainan , Baisha , Yuanmen , Hongmaocun 430 m , 29 Oct. 2007 , YANG Ding.

Etymology. The specific name refers to the blackish apical portion of the hind femur.

Remarks. This new species is similar to *A. orientalis* Yang et Nagatomi and *A. maculipleura* Frey , but it may be separated from them by the thorax mainly yellow and antenna mostly dark brown.



Figs. 1-3. *Allognosta apicinigra* sp. nov. (female). 1. Head , lateral view. 2. Head , frontal view. 3. Abdomen , dorsal view.

2 *Allognosta liui* sp. nov. (Figs. 4-6)

Diagnosis. Female frons distinctly projected beyond eyes. Antennal scape and pedicel yellow , flagellum dark brown except 2 basal segments reddish yellow and last segment black. Thoracic pleuron yellow to dark yellow with one blackish longitudinal spot. Femora yellow ; fore and hind tibiae (except bases) black , mid tibia yellow. Abdomen entirely dark brown.

Female. Body length 4.2 mm , wing length 3.7 mm.

Head subshiny black except lower frons , face and gena with pale gray pollen ; lower frons with one pair of large shiny black spots bare. Frons distinctly projected

beyond eyes. Eyes widely separated on frons , pale reddish brown. Hairs on head pale ; eyes bare. Head 1.45 times higher than long ; width of one eye 0.4 times distance between antennae and median ocellus , 0.5 times width of frons just above antennae and 0.45 times width of face at lowest point from a direct frontal view ; width of frons just above antennae 1.2 times that at median ocellus ; distance from ridge below proboscis to antenna 0.5 times that from antennae to median ocellus. Antennal scape and pedicel yellow , flagellum dark brown except 2 basal segments reddish yellow and last segment black ; relative lengths of antennal segments 2.5 3.5 15.5. Proboscis black with black hairs ; palpus black with black

hairs.

Thorax yellow to dark yellow with pale gray pollen, but dorsum black with mesonotum and scutellum subshiny; pleuron with one blackish longitudinal spot on mesopleuron, pteropleuron and laterotergite. Humeri and postalar calli brownish. Hairs on thorax pale. Legs yellow, but fore and hind tibiae black with brownish yellow base; tarsi black, but mid tarsomere 1 yellow and tarsomere 2 brownish yellow, hind tarsomeres 1-3 yellow. Hairs on legs pale except tibiae and tarsi with

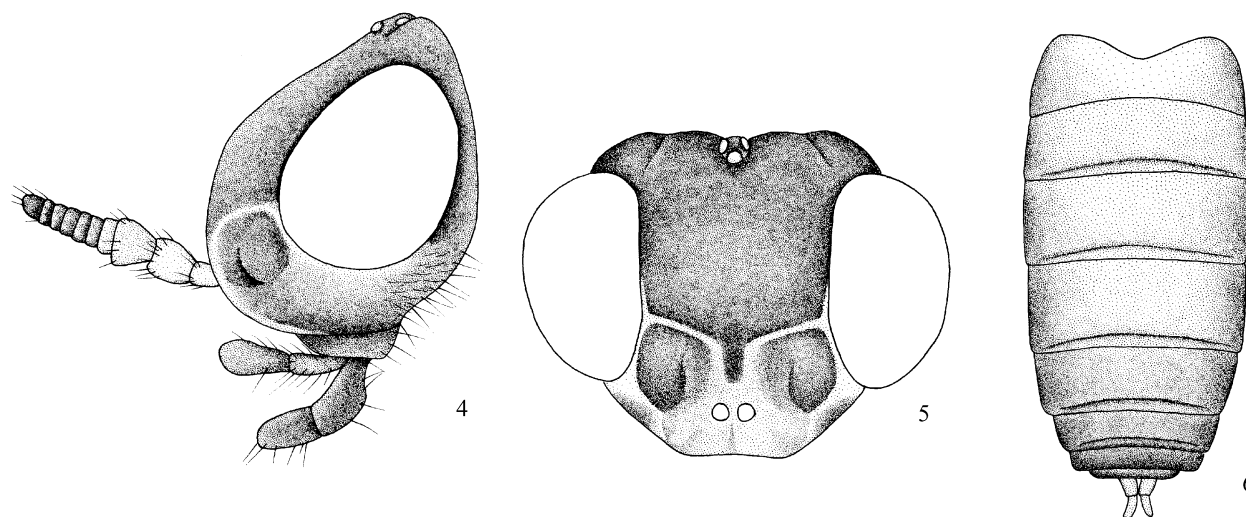
black hairs. Wing grayish brown; veins dark brown. Squama yellow with pale hairs. Halter black with yellow base.

Abdomen entirely dark brown with pale grey pollen. Hairs on abdomen black.

Male. Unknown.

Holotype, Yunnan, Mengla, Mengyuan, 24 May 2005, LIU Xing-Yue.

Etymology. The species is named after the collector Dr. LIU Xing-Yue.



Figs. 4-6. *Allognosta luii* sp. nov. (female). 4. Head, lateral view. 5. Head, frontal view. 6. Abdomen, dorsal view.

Remarks. This new species is somewhat similar to *A. vagans* (Loew) in the abdomen entirely dark brown, but it may be separated from the latter by the thorax partly yellow and female frons distinctly projected beyond eyes. In *A. vagans*, the thorax is entirely black; the female frons is not projected beyond the eyes (Nagatomi and Tanaka, 1969; Yang and Nagatomi, 1992).

3 *Allognosta ningxiana* sp. nov. (Figs. 7-12)

Diagnosis. Female frons not projected beyond eyes. Antenna brownish yellow except scape black. Palpus entirely blackish. Femora dark yellow, but hind femur (except basal portion and extreme tip) brown; tibiae (except bases) and tarsi black.

Male. Body length 5.0 mm, wing length 4.6 mm.

Head black with pale gray pollen. Eyes reddish brown; contiguous on frons and with facets of upper 2/3 enlarged. Hairs on head pale; eyes with very sparse, short, brown hairs. Head 1.5 times higher than long; width of one eye 0.7 times distance between antennae and median ocellus, subequal to width of frons just above antennae and 0.8 times width of face at lowest point from a direct frontal view; width of frons just above antennae 4.8 times that at median ocellus; distance from ridge below proboscis to antenna 0.65 times that from antennae to median ocellus. Antenna brownish yellow except scape black; relative lengths of antennal segments 3 4 26.

Proboscis brownish black with some pale hairs; palpus brown with some pale hairs.

Thorax subshiny black. Humeri and postalar calli brownish. Hairs on thorax brown, but sternopleuron with pale hairs. Legs mainly dark yellow; fore and hind coxae blackish basally; hind femur (except basal portion and extreme tip) brown; tibiae (except base) and tarsi black. Hairs on legs black except coxae and trochanters with pale hairs and hind femur with pale ventral hairs at base. Wing grayish brown except cell R_{2+3} pale; stigma dark brown; veins dark brown. Squama brown with brown hairs. Halter dark brown.

Abdomen dark brown with thin pale grey pollen; sternites 1-7 brown except sternites 2-4 (except lateral margin) yellow and sternite 5 with one small yellow mid-anterior spot. Hairs on abdomen black, but sternites 1-7 with pale hairs.

Male genitalia. Tergite 9 distinctly longer than wide, with a large deep anterior incision; mid-posterior process of fused gonocoxites large and wide; gonostylus weakly incurved inward with acute tip.

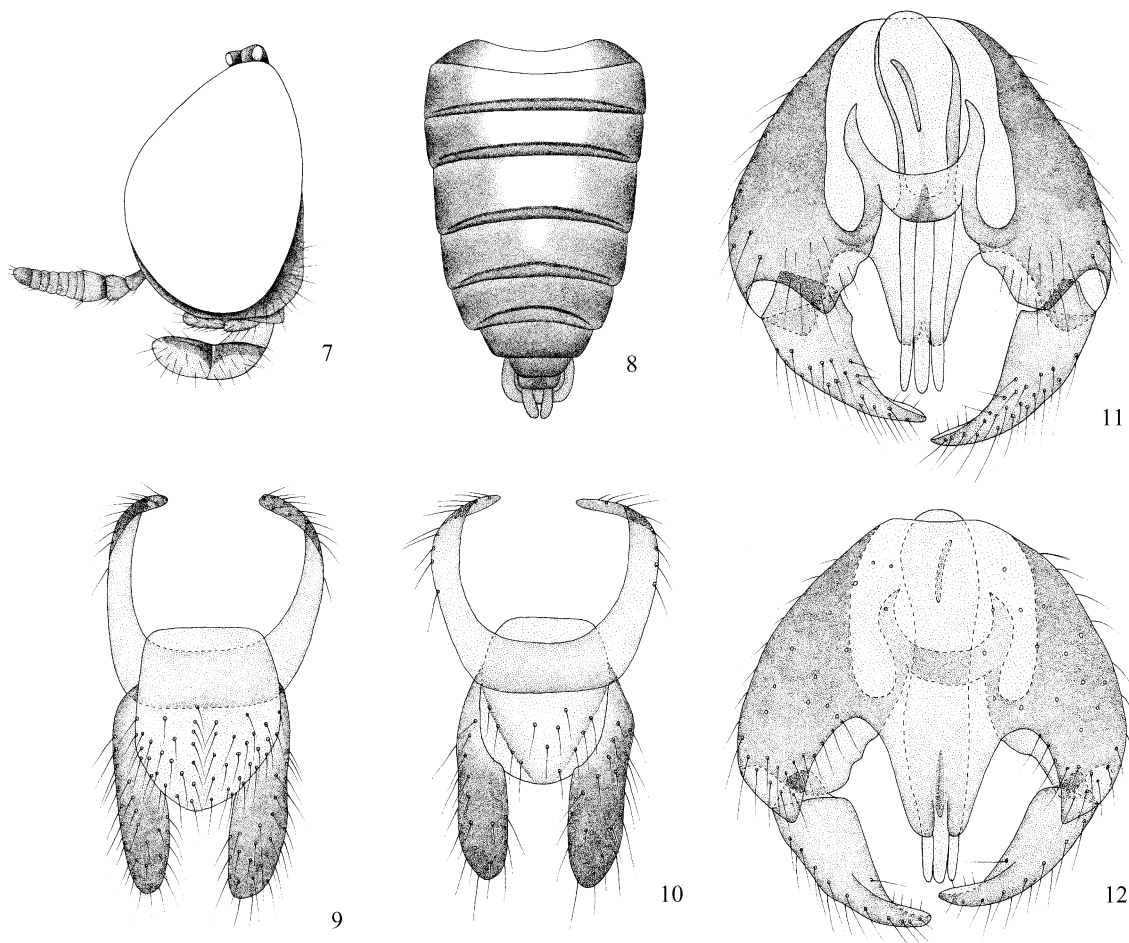
Female. Body length 4.7-4.8 mm, wing length 4.5-4.6 mm. Head subshiny black except lower 1/3 of frons and face. Frons not projected convex beyond eyes. Head 1.3 times higher than long; width of one eye 0.6 times distance between antennae and median ocellus, 0.7 times

width of frons just above antennae and 0.6 times width of face at lowest point from a direct frontal view; width of frons just above antennae subequal to that at median ocellus; distance from ridge below proboscis to antenna 0.75 times that from antennae to median ocellus.

Holotype , Ningxia , Longde , Sutai 2 100 m , 24 June 2008 , LIU Jing-Xian. Paratypes : 1 , Ningxia , Jingyuan , Xiaonanchuan 1 900 m , 3 July 2008 , ZHANG Ting-Ting ; 1 , Ningxia , Jingyuan , Hongxia 1 920 m , 1 July 2008 , ZHANG Ting-Ting ; 1 , Ningxia , Jingyuan , Liangdianxia 2 000 m , 28 June 2007 , DONG Qi-Biao.

Etymology. The species is named after the type locality Ningxia.

Remarks. This new species is similar to *A. japonica* Frey from Japan , but it may be separated from the latter by the female frons not projected beyond the eyes , antennae brownish yellow except the scape black , palpus entirely black , and hind tarsus entirely black. In *A. japonica* , the female frons is distinctly projected beyond the eyes , the antenna is dark brown except the basal portion of the flagellum ; the apical portion of the palpus is brownish yellow ; the hind metatarsus is yellowish brown (Nagatomi and Tanaka , 1969) .



Figs. 7-12. *Allognosta ningxiana* sp. nov. (male). 7. Head , lateral view. 8. Abdomen , dorsal view. 9. Tergites 9-10 and cerci , ventral view. 10. Tergites 9-10 and cerci , dorsal view. 11. Genital capsule , dorsal view. 12. Genital capsule , ventral view.

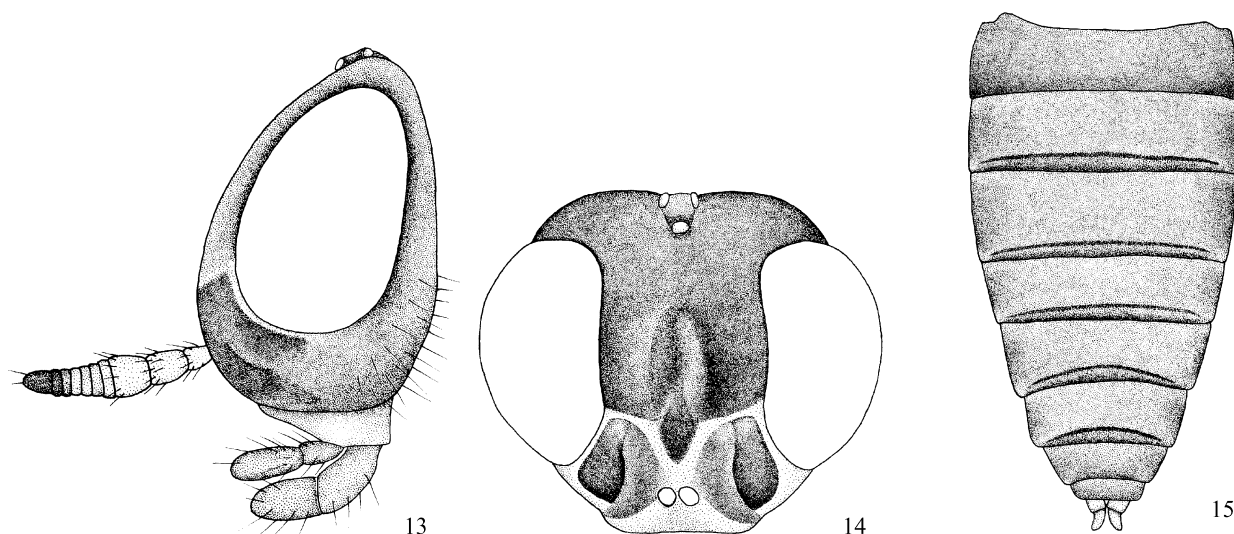
4 *Allognosta yanshana* sp. nov. (Figs. 13-15)

Diagnosis. Frons distinctly projected beyond eyes. Antennal scape and pedicel dark yellow , flagellum reddish yellow except last segment black. Pleuron blackish; sternopleuron with one large shiny blackish spot. Femora brownish yellow; tibiae (except bases) blackish to black. Abdomen entirely dark brown.

Female. Body length 4.1 mm , wing length 3.6 mm.

Head subshiny black except lower frons , face and

gena with pale gray pollen; lower frons with one pair of large shiny black lateral spots and one small median spot bare. Frons distinctly projected beyond eyes. Eyes widely separated on frons , blackish brown. Hairs on head pale; eyes bare. Head 1.7 times higher than long; width of one eye 0.4 times distance between antennae and median ocellus , 0.55 times width of frons just above antennae and 0.6 times width of face at lowest point from a direct frontal view; width of frons just above antennae 1.2 times that at median ocellus; distance from ridge below



Figs. 13-15. *Allognosta yanshana* sp. nov. (female). 13. Head, lateral view. 14. Head, frontal view. 15. Abdomen, dorsal view.

proboscis to antenna 0.7 times that from antennae to median ocellus. Antennal scape and pedicel dark yellow, flagellum reddish yellow except last segment black; relative lengths of antennal segments 3 4 17. Proboscis blackish with black hairs; palpus black with black hairs.

Thorax blackish with pale gray pollen, but mesonotum and scutellum subshiny black. Humeri and postalar calli brownish. Sternopleuron with one large shiny blackish spot; propleuron brownish. Hairs on thorax pale. Legs brownish yellow, but coxae dark brownish yellow, tibiae blackish to black with brownish yellow bases; tarsi black, but mid tarsomeres 1-2 and hind tarsomeres 1-3 dark yellow. Hairs on legs pale except tibiae and tarsi with black hairs. Wing grayish brown; veins dark brown. Squama dark yellow with pale hairs. Halter dark brown with dark yellow base.

Abdomen dark brown with pale grey pollen. Hairs on abdomen black.

Male. Unknown.

Holotype, Guangxi, Yanshan, 30 Apr. 1963, YANG Chi-Kun.

Etymology. The species is named after type locality Yanshan.

Remarks. This new species is very similar to *A. liui* sp. nov., but it may be separated from the latter by the antennal flagellum reddish yellow except last segment black, thoracic pleuron blackish, sternopleuron with one large shiny blackish spot, tibiae (except bases) blackish to black. In *A. liui*, the antennal flagellum is dark brown except 2 basal segments reddish yellow and last

segment black; the thoracic pleuron is yellow to dark yellow with one blackish longitudinal spot; the mid tibia is yellow.

Acknowledgements Our sincere thanks are due to Prof. YANG Chi-Kun, Dr. LIU Xing-Yue, Mr. DONG Qi-Biao (Beijing) and Dr. LIU Jing-Xian (Hangzhou) for collecting the specimens.

REFERENCES

- Brunetti, E. 1920. Diptera Brachycea. Vol. 1. In: Shipley, A. E. (ed.), The Fauna of British India, including Ceylon and Burma. Taylor and Francis, London. 1-401.
- Brunetti, E. 1923. Second revision of the Oriental Stratiomyidae. Records of the Indian Museum, 25 (1): 45-180.
- Enderlein, G. 1921. Über die phyletische alteren Stratiomyiiden subfamilien (Xylophaginae, Chiromyzinae3, Solvidae, Beridinae, und Coenomyiinae). Mitteilungen aus dem Zoologischen Museum in Berlin, 10: 151-214.
- Frey, R. 1961. Orientalische Stratiomyiiden der subfamilien Beridinae und Metoponiinae (Dipt.). Notulae Entomologicae, 40: 73-85.
- James, M. T. 1969. New Formosan Stratiomyidae in the collection of the Deutsches Entomologisches Institut (Diptera). Arbeiten über morphologische und Taxonomische Entomologie, 6: 31-37.
- Lindner, E. 1936-1938. 18. Stratiomyiidae. Die Fliegen der Palaearctische Region, 4 (1): 1-218. Stuttgart.
- Nagatomi, A. and Tanaka, A. 1969. The Japanese Actina and Allognosta (Diptera, Stratiomyidae). The Memoirs of the Faculty of Agriculture, Kagoshima University, 7 (1): 149-176.
- Rozkošný, R. 1982. A biosystematic study of European Stratiomyidae (Diptera). Vol. 1. Series Entomologica, 21: 1-401.
- Woodley, N. E. 2001. A world catalog of the Stratiomyidae (Insecta: Diptera). Myia, 11: 1-475.
- Yang, D. and Nagatomi, A. 1992. A study on the Chinese Beridinae (Diptera: Stratiomyidae). South Pacific Study, 12 (2): 129-178.

中国距水虻属新种记述（双翅目，水虻科）

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摘 要 记述我国距水虻属 *Allognosta* 4 新种，即黑端距水虻 *A. apicinigra* sp. nov.、刘氏距水虻 *A. liui* sp. nov.、宁夏距水虻 *A. ningxiana* sp. nov. 和雁山距水虻 *A. yanshana* sp. nov.。模式标本保存在中国农业大学昆虫博物馆。

1 黑端距水虻，新种 *Allognosta apicinigra* sp. nov. (图 1~3)
新种与东方距水虻 *A. orientalis* Nagatomi et Yang 和斑胸距水虻 *A. maculipleura* Frey 近似但胸部主要黄色，触角大部暗褐色。
正模 ，海南白沙元门红茂村 430 m，2007-10-29，杨定。
词源：种名意指后足腿节端部浅黑色。

2 刘氏距水虻，新种 *Allognosta liui* sp. nov. (图 4~6)
新种与奇距水虻 *A. vagans* (Loew) 有些近似，但胸部部分黄色，雌性额在复眼前缘显著突出。
正模 ，云南孟腊孟元，2005-05-24，刘星月。
词源：新种以采集者刘星月博士姓氏命名。

3 宁夏距水虻，新种 *Allognosta ningxiana* sp. nov. (图 7~

12)
新种与日本距水虻 *A. japonica* Frey 近似，但雌性额在复眼前缘不突出，触角黄褐色且柄节黑色，须全黑色，后足腿节全黑色。
正模 ，宁夏隆德苏台 2 100 m，2008-06-24，刘经贤。副模 1 ，宁夏泾源小南川 1 900 m，2008-07-03，张婷婷；1 ，宁夏泾源红峡 1 920 m，2008-07-01，张婷婷；1 ，宁夏泾源凉殿峡 2 000 m，2007-06-28，董奇彪。
词源：新种以模式产地命名。

4 雁山距水虻，新种 *Allognosta yanshana* sp. nov. (图 13~15)
新种与刘氏距水虻 *A. liui* sp. nov. 很近似，但触角鞭节赤黄色且末节黑色，胸侧浅黑色且腹侧片有 1 大的浅黑斑，胫节（除基部外）浅黑色至黑色。
正模 ，广西雁山，1963-04-30，杨集昆。
词源：新种以模式产地命名。

关键词 双翅目，水虻科，距水虻属，新种，中国。
中图分类号 Q969.447.4

*通讯作者.